

## AERMOD vs. CALPUFF

<p><b>AERMET (Meteorology Processor for AERMOD)</b></p> <ul style="list-style-type: none"> <li>• Input: <ul style="list-style-type: none"> <li>○ Meteorological input data: surface observation data at one site, upper air radiosonde data at one site</li> <li>○ Geophysical input data: terrain elevation data, land use/land cover data</li> </ul> </li> <li>• Output: <ul style="list-style-type: none"> <li>○ Surface file: surface level meteorological and micrometeorological data</li> <li>○ Profile file: a vertical profile of winds, temperature and the standard deviation of the fluctuating components of the wind</li> </ul> </li> </ul>	<p><b>CALMET (Meteorology Processor for CALPUFF)</b></p> <ul style="list-style-type: none"> <li>• Input: <ul style="list-style-type: none"> <li>○ Meteorological input data: surface observation data at multiple sites, upper air radiosonde data at multiple sites</li> <li>○ Geophysical input data: terrain elevation data, land use/land cover data</li> </ul> </li> <li>• Output: <ul style="list-style-type: none"> <li>○ 3-dimensional wind and temperature fields</li> <li>○ Surface level micrometeorological data</li> </ul> </li> </ul>
<p><b>AERMOD Dispersion Model Characteristics</b></p> <ul style="list-style-type: none"> <li>• US EPA recommended model</li> <li>• Straight-line Gaussian plume model</li> <li>• Cannot handle calm winds</li> <li>• Calculate concentration, dry deposition and wet deposition</li> </ul>	<p><b>CALPUFF Dispersion Model Characteristics</b></p> <ul style="list-style-type: none"> <li>• US EPA recommended model</li> <li>• Non-steady Gaussian puff model</li> <li>• Can deal with calm winds</li> <li>• Calculate concentration, dry deposition and wet deposition</li> </ul>
<p><b>Dry Deposition of Particulate Matter</b></p> <ul style="list-style-type: none"> <li>• Total Suspended Particulates are divided into five bins (based on US EPA, 1989): 0~1, 1~2.5, 2.5~10, 10 ~20, 20~30 <math>\mu\text{m}</math></li> <li>• Dry deposition velocity is calculated based on average particulate size</li> </ul>	<p><b>Dry Deposition of Particulate Matter</b></p> <ul style="list-style-type: none"> <li>• Total Suspended Particulates are divided into five bins (based on US EPA, 1989): 0~1, 1~2.5, 2.5~10, 10 ~20, 20~30 <math>\mu\text{m}</math></li> <li>• Dry deposition velocity is calculated based on average particulate size</li> </ul>